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EXAMINER

FINEMAN, LEE A

| ART UNIT | PAPER NUMBER |
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2872

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,775

Applicant(s)

AONO, YASUSHI

Examiner

Joshua L. Pritchett
~~for Lee Freeman~~

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 17-28 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29-34 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 13-16, 35 and 36 is/are rejected.
- 7) ☒ Claim(s) 4 and 9-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawano (US 2002/0097489).

Regarding claim 1, Kawano et al. disclose in fig. 7 an illumination switching apparatus (700) comprising: an objective (314) having a numerical aperture which enables total reflection illumination to be performed on a target (pages 3-4, sections (0061)-(0063J)); a light source section (302 and 702) which has a light source optical axis and outputs illumination light; an illumination system (706, 308, 310, 312) which has an illumination system optical axis and the illumination light output from the light source section to the objective (Fig. 7); and an illumination switching section (304, 306, 704 a and b) which selects one of a first optical path (from 702) and a second optical path (from 302), wherein when the first optical path is selected, the light source optical axis coincides with the illumination optical axis (Fig. 7) the illumination light output from the light source section is guided through the illumination system to travel along an optical axis of the objective to illuminate the target in a standard observation mode

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(pages 3-4, section (00611), and wherein when the second optical path is selected, the light source optical axis is offset with respect to the illumination optical axis (Fig. 7), the illumination light output from the light source section being guided through the illumination system and the objective to illuminate the target in a total reflection observation mode (pages 3-4, section (0061)).

Regarding claim 2, Kawano et al. further disclose wherein the illumination switching section (304, 306, 704 a and b) performs switching between illumination of the target using standard observation light, performed by guiding the illumination light through the first optical path, and illumination of the target using total reflection observation light, performed by guiding the illumination light through the second optical path (pages 3-4, section (00612)).

Regarding claim 3, Kawano et al. further disclose wherein, the light source section includes at least a first light source and a second light source (302 and 702); and wherein the illumination switching section includes; a light transmission section (304, 306) which guides the illumination light output from the first light source (702) to the first optical path (from 702), and guides the illumination light output from the second light source (302) to the second optical path (from 302); and at least two shutter mechanisms (704 a and b) including a first shutter mechanism provided across the first optical path and a second shutter mechanism provided across the second optical path (Fig. 7), wherein the at least two shutter mechanisms cooperate to selectively permit the illumination light to travel through one of the first and the second optical paths while preventing the illumination light to transmit through the other of the first and the second optical path (pages 3-4, section (0061)).

Regarding claims 5 and 6, Kawano et al. further disclose wherein the shutter mechanisms

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(704 a and b) comprises one of a mechanical shutter which is mechanically opened and closed, and an electronic shutter which is electronically opened and closed (page 3, section (00611, lines 8-9) and further comprising a shutter controller (not shown, but clearly present at least when automatically operated) which opens the first the shutter mechanism and closes the second shutter mechanism when the target is observed using standard fluorescent light, and which closes the first shutter mechanism and opens the second shutter mechanism when the target is observed using total reflection of fluorescent light (pages 3-4, section (00612).

Regarding claim 7, Kawano et al. further disclose in fig. 7 an illumination switching apparatus (700) comprising: an objective (314) having a numerical aperture which enables total reflection illumination to be performed on a target (pages 3-4, sections (00611-(00631); a first light source (702) which outputs first illumination light; at least one second light source (302) which outputs second illumination light; an illumination system (706, 308, 310, 312) which has an illumination optical axis and guides a received one of the first and second illumination light to the objective Fig. 7); a first light transmission section (between 702 and 304) which guides the first illumination light, output from the first light source (702), to a first optical path (Fig. 7), which has an optical axis and along which the first illumination light is guided through the illumination system and along an optical axis of the objective Fig. 7); a second light transmission section (between 302 and 304) which guides the second illumination light, output from the second light source (302), to a second optical path, which has an optical axis that is offset with respect to the illumination optical axis and along which the second illumination light is guided through the illumination system to realize the total reflection illumination on the target (Fig. 7 and pages 3-4, section (0061J); a first illumination switching section (304, 306, 704b) which is

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selectively operable to permit the first illumination light output from the first light source to be guided to the first light transmission section, and to interrupt the first illumination light; and a second illumination switching section (304, 306, 704a) which is selectively operable the second illumination light output from the second light source to be guided to the second light transmission section, and to interrupt the second illumination light (pages 3-4, section (00611)).

Regarding claim 8, Kawano et al. further disclose wherein the first illumination switching section comprises a first shutter mechanism (704b) which is selectively operable to permit the first illumination light output from the first light source to be guided to the first light transmission section, and to interrupt the first illumination light; and the second illumination switching section comprises a second shutter mechanism (704a) which is selectively operable to permit the second illumination light output from the second light source to be guided to the second light transmission section, and to interrupt the second illumination light (pages 3-4, section (00611)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et

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al. (US 2002/0097489) in view of Nagayama, (US 5,552,892).

Regarding claim 13, Kawano et al. disclose the claimed invention except for wherein the first light transmission section includes a first optical fiber that transmits the first illumination light. Nagayama teaches an illumination optical system (Fig. 1) that includes an optical fiber to transmits the illumination light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the optical fibers of Nagayama to the system of Kawano et al. to provide a more compact system with a detached light source that is easily moved/stored away from the system.

Regarding claims 14 and 15, Kawano et al. disclose the claimed invention except for wherein the second light transmission section also includes an optical element, which is a small total reflection mirror, which deflects the second illumination light output from the second light emission section, thereby guiding the second illumination light to the second optical path of the illumination system. Nagayama further teaches in (Fig. 3) an optical element (33 or 13A or 13B), which is a small total reflection mirror, used in conjunction with the optical fibers to guide the illumination light into the system. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the optical element with the optical fibers of Nagayama to the system of Kawano et al. to provide even more flexibility with guiding the light into the system.

Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano (US 2002/0097489) et al. in view of Nagayama (US 5,552,892) as applied to claim 14 above and further in view of Tearney et al. (US 6,501,551 B1).

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Kawano et al. in view of Nagayama as applied to claim 14 above discloses the claimed invention except for wherein the optical element has a total reflection microprism. Tearney et al. teaches an imaging system in Fig. 7C that includes a beam directing optical element and further teaches the equivalence in the art of a mirror and microprism (column 9, lines 21-24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the above optical elements in the system of Kawano et al. in view of Nagayama to provide accurate beam directing capabilities.

Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. (US 2002/0097489).

Kawano teaches the invention as claimed but lacks reference to a telecentric illumination system. It is extremely well known in the art to use a telecentric system to create an area of illumination that does not change in size as the location of the optical elements move within the optical path. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Kawano invention include a telecentric illumination system so that the area of illumination on the object remains constant even if the location of the lenses in the illumination system are changed. This provides two advantages, first the telecentric system compensates for imprecision in the manufacturing process and could also secondly the telecentric system could allow the system to be more compact.

Allowable Subject Matter

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Claims 29-34 are allowed.

Claims 4 and 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claims 4, 9-12 and 29-34 are allowable or have allowable subject matter over the prior art for at least the reason that the prior art fails to teach and/or suggest the light sources have respective laser oscillators which output respective laser beams as set forth in the claimed combination.

Kawano et al. disclose an illumination switching apparatus (700) comprising; an objective (314); a first light source (702); at least one second light source (302); an illumination system (706, 308, 310, 312)., a first light transmission section (between 702 and 304); a second light transmission section (between 302 and 304)., a first illumination switching section (304, 306, 704b) which allows the first illumination light output from the first light source to be guided to the first light transmission section, or interrupts the first illumination light; and a second illumination switching section (304, 306, 704~~8~~) which allows the second illumination light output from the second light source to be guided to the second light transmission section, or interrupts the second illumination light (pages 3-4, section (00611) but does not have the light sources have respective laser oscillators which output respective laser beams. In fact, the light sources of Kawano et al. are conventional white light sources and Kawano et al. teaches away from using lasers in the system (page 1, sections (00092)-(00122)).

Response to Arguments

Applicant's arguments filed March 13, 2006 have been fully considered but they are not persuasive.

Applicant argues that the Kawano reference fails to teach or suggest the first light source optical axis does not coincide with the illumination axis and the second light source is not offset from the illumination axis. The optical axis of the first light source passes through elements 304, 306 and 704b and is coincident with the light passing through the illumination axis (which passes through 706, 308, 310 and 312). The optical axis of the second light source passes through elements 304, 306, 704a and 324 and is offset from the illumination axis. The examiner interprets "offset" to include perpendicular. This configuration is shown in Fig. 7 of Kawano.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L. Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLP



DREW A. DUNN
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